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Update: *Staphylococcus aureus* with Reduced Susceptibility to Vancomycin — United States, 1997

Staphylococcus aureus is one of the most common causes of both hospital- and community-acquired infection worldwide. Since the emergence of methicillin-resistant *S. aureus* (MRSA) in the 1980s in the United States, vancomycin has been the antimicrobial agent of choice for serious MRSA infections. *S. aureus* with reduced susceptibility to vancomycin (minimum inhibitory concentration [MIC]=8 μ/mL) was first reported to have caused infection in a patient in Japan in May 1996 (*1*). In August 1997, the first *S. aureus* isolate intermediately resistant to vancomycin (VISA; MIC=8 μ/mL) in the United States was reported in Michigan (*2*). This report updates the ongoing investigation in Michigan and describes preliminary findings of the ongoing investigation of a second case of VISA infection in a patient in New Jersey.

Case 1. In July 1997, VISA-associated peritonitis was diagnosed in a Michigan resident who was being treated with long-term ambulatory peritoneal dialysis (*2*). During January–June, the patient had been treated with multiple courses of both intraperitoneal and intravenous vancomycin for repeated episodes of vancomycin-susceptible, MRSA-associated peritonitis. Although intermediately resistant to vancomycin, the VISA isolate was susceptible to chloramphenicol, rifampin, trimethoprim-sulfamethoxazole, and tetracycline. The patient continues to receive antimicrobial therapy at home. As a part of the investigation, cultures were obtained from the hands and nares of the index patient's household contacts, hospital roommates, and health-care providers. Although *S. aureus* was isolated from 13 (25.4%) of 51 hand cultures and eight (15.6%) of 51 nares cultures, none of these cultures were positive for VISA.

Case 2. In August 1997, a VISA-associated bloodstream infection was diagnosed in a New Jersey resident with long-term MRSA colonization and repeated MRSA infections since February. The patient was not receiving chronic dialysis. In addition, since February, the patient has had vancomycin-resistant enterococcal (VRE) colonization. During March–August, the patient had been treated with multiple courses of vancomycin for repeated MRSA bloodstream infections. In August, a blood culture from the patient grew an MRSA strain with intermediate resistance to vancomycin (MIC=8 μ/mL); all previous MRSA strains had been vancomycin susceptible. This VISA isolate was sent to CDC, where the intermediate resistance was confirmed; the isolate was susceptible to gentamicin, trimethoprim-sulfamethoxazole, tetracycline, and imipenem. The patient continues to receive antimicrobial therapy at home.

Staphylococcus aureus — *Continued*

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Editorial Note: Since the 1980s (when MRSA emerged in the United States), vancomycin has been the last uniformly effective antimicrobial available for treatming serious *S. aureus* infections. The findings in this report document two VISA infections in the United States within a 1-month period. Widespread use of antimicrobials, such as vancomycin, is a major contributing factor for the emergence of VRE and other vancomycin-resistant organisms. In the first case in the United States (case 1), spread of VISA to other patients and health-care workers probably was prevented by prompt identification of the isolate and its susceptibility pattern, isolation of the patient while hospitalized, and implementation of recommended infection-control practices (*3*). In both Michigan and New Jersey, VISA was detected by using a 24-hour MIC dilutional method that had not changed over the period during which these patients had repeated *S. aureus* infections. The detection of a second U.S. strain of VISA with a different antimicrobial susceptibility pattern from those isolated previously suggests that these strains are developing de novo secondary to vancomycin exposure. Further studies are under way to determine VISA genotypes and to identify the mechanism(s) of resistance.

The emergence of VISA in the United States suggests that *S. aureus* strains with full resistance to vancomycin may eventually emerge. These episodes emphasize the need to enhance laboratory capacity at the hospital and state levels to recognize these strains, the importance of prudent use of antimicrobials, and the requirement for full implementation of recommended infection-control measures to prevent transmission of these strains. To prevent spread of these organisms within and between facilities, health-care providers and facilities are advised to 1) use a quantitative method (broth dilution, agar dilution, or agar gradient diffusion) to identify these strains; 2) ensure appropriate use of vancomycin, including the review of antibiograms for alternative antibiotics (*4*); 3) educate health-care personnel about the epidemiologic implications of emergence of such strains and the appropriate infection-control precautions necessary to prevent their spread; 4) strictly adhere to and monitor compliance with contact-isolation precautions and other recommended infection-control practices; and 5) conduct surveillance to monitor for the emergence of resistant strains. Detailed recommendations to prevent, detect, and control *S. aureus* with reduced susceptibility to vancomycin have been published (*3*).

The isolation of *S. aureus* with confirmed or "presumptive" reduced vancomycin susceptibility should be reported immediately through state and local health departments to CDC's Investigation and Prevention Branch, Hospital Infections Program, National Center for Infectious Diseases, Mailstop E-69, 1600 Clifton Road, N.E., Atlanta, GA 30333; telephone (404) 639-6413. Physicians treating patients with infections caused by staphylococci with reduced susceptibility to vancomycin can obtain information about investigational drug therapies from the Food and Drug Administration's Division of Anti-Infective Drug Products, Center for Drug Evaluation and Research, telephone (301) 827-2120.

Staphylococcus aureus — *Continued*

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Update: Influenza Activity — Worldwide, March–August 1997

During the October 1996–March 1997 influenza epidemic season, influenza activity was moderate to severe in the Northern Hemisphere. In Europe, Japan, and North America, influenza A(H3N2) viruses predominated, but influenza B viruses were more commonly isolated by the end of the season (*1*). In contrast, in some countries in the World Health Organization (WHO) region of Asia (e.g., China, Iran, and Israel), influenza B viruses were isolated more frequently than influenza A(H3N2) viruses. Influenza A(H1N1) viruses were isolated infrequently worldwide, except in Europe, where 14 countries reported sporadic* isolations, and a late-season outbreak in April affected children in the Czech Republic. Since March 1997, influenza activity has increased in the Southern Hemisphere, and outbreaks and epidemic level activity have been associated with both influenza A(H3N2) and influenza B viruses. This report summarizes worldwide influenza activity during March–August 1997, as reported through WHO, the WHO international network of collaborating laboratories, and U.S. state and local health departments, and characterizes influenza isolates collected during March–July.

Africa. In Madagascar, increased activity during May was associated with influenza B viruses. Senegal reported isolation of several influenza A(H3N2) viruses during March and April. Most isolations reported from sporadic cases in South Africa during June–August were influenza A(H3N2), but influenza A(H1N1) and influenza B viruses also were detected.

Asia. In Hong Kong, during April–July, influenza A(H3N2) viruses were more frequently isolated than influenza B viruses, which had predominated during January–March. Several outbreaks associated with influenza A(H3N2) occurred in nursing homes for the elderly during May–July. In addition, Hong Kong reported sporadic isolation of influenza A(H1N1) virus during June–August. Influenza A(H5N1), a strain of influenza virus that usually infects only birds, was isolated from a 3-year-old child in Hong Kong who died in May of multiple complications including Reye syndrome during an acute respiratory illness. In Japan, at the end of a season predominated by influenza A(H3N2) viruses, the number of influenza B isolates increased and peaked during March. Influenza B viruses continue to predominate in China, although isolation of influenza A(H3N2) was reported during April, and influenza A(H1N1) was reported during April and May. Since March, influenza B viruses have been isolated

*Levels of activity are 1) *sporadic*–sporadically occurring influenza-like-illness (ILI) or culture-confirmed influenza, with no outbreaks detected; 2) *regional*–outbreaks of ILI or culture-confirmed influenza in counties having a combined population of <50% of the state's total population; and 3) *widespread*–outbreaks of ILI or culture-confirmed influenza in counties having a combined population of ≥50% of the state's total population.

Influenza Activity — Continued

from sporadic cases in Guam, Israel, Korea, Nepal, Taiwan, and Thailand, and influenza A(H3N2) viruses in Israel, Nepal, and Thailand.

Europe. From the end of March through May, most postseason sporadic isolates in Europe were influenza B. Influenza B viruses were isolated in Croatia, Czech Republic, France, Germany, Netherlands, Norway, Poland, and Switzerland. During April, the Czech Republic reported outbreaks of influenza A(H1N1) virus among schoolchildren. Other countries reporting isolation of influenza A(H1N1) from sporadic cases include Germany, Norway, and the United Kingdom. Germany also reported postseason isolation of influenza A(H3N2) viruses.

North America. Influenza A(H3N2) viruses were isolated from sporadic cases in the United States during March and April. In addition, two nursing home outbreaks associated with influenza A(H3N2) were reported: one in Delaware during March and one in California during June. As in Europe, influenza B viruses were isolated more frequently than influenza A(H3N2) viruses after mid-February. CDC received isolates of influenza B virus from sporadic cases each month from March to June. In Canada, influenza type A continued to be isolated through April and again in August; influenza B virus was isolated through March. Mexico reported isolates of influenza B virus in March.

Oceania. Overall, influenza activity during the 1996–97 season in Oceania was predominantly associated with influenza A(H3N2). In Australia, influenza-like illness as reported by sentinel medical practices increased during late June with notable activity in Melbourne and Sydney. Initially, preseason isolates and outbreaks in June among school-aged children were associated with influenza B viruses. By July, influenza A(H3N2) viruses had become predominant. In New Zealand and Niue, local outbreaks occurring during May–July were caused by influenza B. Since July, isolation of influenza A(H3N2) viruses has increased in New Zealand. In Oceania, only New Zealand has reported influenza A(H1N1) (one isolate).

South America. Since March, influenza activity has increased in South America. During May–July, Brazil reported outbreaks associated with both influenza A(H3N2) and influenza B viruses. In Chile, influenza B was the predominant virus type isolated, and isolation peaked in June; however, influenza A viruses also were isolated during June. Argentina reported isolation of influenza B viruses from sporadic cases, and French Guiana reported isolation of influenza B and influenza A(H3N2) viruses from sporadic cases.

Characterization of influenza virus isolates. The World Health Organization Collaborating Center for Surveillance, Epidemiology, and Control of Influenza at CDC analyzes isolates received worldwide. Isolates collected during March–July are described here and include those from the end of the influenza season in the Northern Hemisphere and during the epidemic season in the Southern Hemisphere. All 48 influenza A(H3N2) isolates were antigenically similar to A/Wuhan/359/95, the A(H3N2) component of the 1997–98 influenza vaccine. Of the 48 influenza A(H3N2) isolates, 14 (29%) were collected from the United States and Canada as season-end isolates. The number of characterized influenza A(H3N2) isolates from recent epidemic activity in the Southern Hemisphere included five (10%) from South America and 15 (31%) from New Zealand and Australia. Fourteen (29%) isolates were from current activity in Asia.

Influenza Activity — Continued

During March–August, a total of 128 influenza B isolates were collected and analyzed. Of these, 45 (33%) were from North America, and 18 (14%) were from Australia, New Zealand, and parts of South America, where influenza B viruses were isolated early during the Southern Hemisphere epidemic season. All of the isolates from North America, Australia, New Zealand, and South America are antigenically related to B/Beijing/184/93, the influenza B component of the 1997–98 influenza vaccine. In Asia, of the 65 influenza B viruses associated with sporadic and outbreak activity since March, 21 (32%) were characterized as A/Beijing/184/93-like, and 44 (68%) were B/Victoria/02/87-like. Although the proportion of B/Victoria/02/87-like viruses has increased, these viruses have not been identified outside of Asia since 1991.

No recent influenza A(H1N1) viruses related to either A/Texas/36/91 or A/Bayern/07/95, the H1N1 component of the 1997–98 influenza vaccine, have been analyzed. Only six influenza A(H1N1) viruses from China and Hong Kong were characterized and were antigenically similar to A/Wuhan/371/95, an antigenically distinct group of viruses identified in only China, Hong Kong, and Singapore (*1*).

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Editorial Note: In the United States, influenza A(H3N2) viruses were the most frequently isolated influenza viruses during the 1996–97 influenza season; however, from mid-February through May, influenza B viruses were more frequently isolated than influenza A viruses. Both influenza A(H3N2) and influenza B viruses circulated from March through August in the Southern Hemisphere during a moderate influenza season. Although the type of influenza virus and timing and extent of circulation cannot be predicted with certainty for any given influenza season, data from previous seasons suggest that influenza B viruses may circulate more widely in the United States during the 1997–98 influenza season than during the 1996–97 influenza season, and that influenza A viruses will continue to circulate.

The influenza vaccine is updated annually to include viruses antigenically similar to the strains of the three distinct groups of influenza viruses that are expected to predominate worldwide circulation. The influenza vaccine for the 1997–98 influenza season contains A/Bayern/07/95-like(H1N1), A/Wuhan/359/95-like(H3N2), and B/Beijing/184/93-like antigens. U.S. vaccine manufacturers will use the antigenically equivalent strains A/Johannesburg/82/96(H1N1), A/Nanchang/933/95(H3N2), and B/Harbin/07/94 because of their growth properties and suitability for vaccine production.

The Advisory Committee on Immunization Practices recommends targeting influenza vaccination programs toward persons at increased risk for influenza-associated complications that can result in hospitalization or death. Groups at increased risk include persons aged ≥65 years; persons who reside in nursing homes or chronic-care facilities; persons with chronic cardiovascular or pulmonary disorders, including children with asthma; persons who required medical follow-up or hospitalization during the previous year because of diabetes or other chronic metabolic diseases, renal dysfunction, hemoglobinopathies, or immunosuppression; children and teenagers (aged 6 months–18 years) receiving long-term aspirin therapy and who may therefore be at risk for developing Reye syndrome after influenza; and women who will be in the second or third trimester of pregnancy during the influenza season. Because persons

Influenza Activity — Continued

who are clinically or subclinically infected can transmit influenza virus to high-risk persons, vaccination also is recommended for health-care workers and other persons, including household members, in frequent contact with persons at high-risk for influenza-related complications. Influenza vaccine also can be administered to other persons who want to reduce the likelihood of acquiring influenza and for whom vaccination is not contraindicated (*2*).

Use of influenza vaccine in the United States has increased substantially in recent years and annual vaccine production has kept pace with this demand. Based on data from CDC's National Health Interview Survey, the proportion of persons aged ≥65 years who reported having received influenza vaccine during the previous year increased from 32.9% in 1989 to 55.3% in 1994 (*3,4*). Data from the Behavioral Risk Factor Surveillance System (BRFSS), a state-based random-digit–dialed telephone survey of the civilian, noninstitutionalized adult population, indicate that the median estimated percentage of persons aged ≥65 years who reported having received influenza vaccine during the previous year increased from 49.9% in 1993 to 59.2% in 1995 (*4,5*). From 1989 to 1995, annual vaccine production increased from approximately 28 million doses to approximately 73 million doses (Food and Drug Administration, unpublished data, 1997). Projected influenza vaccine supply for the 1997–98 influenza season is expected to meet projected increased demand.

In the United States, the optimal time for organized influenza vaccination campaigns is October through mid-November. However, beginning in September, health-care providers should offer influenza vaccine to persons at high risk for influenza who are assessed for routine care or are hospitalized. After mid-November, health-care providers should continue to offer influenza vaccine to high-risk persons until and even after influenza activity has begun in the community. Because timing of influenza activity varies from year to year and among regions and local communities, local influenza surveillance reports can be useful to health-care providers in determining the period through which continuing influenza vaccination is beneficial.

Information about influenza surveillance is available through the toll-free CDC Voice Information Service (influenza update, recorded message) by telephone (888) 232-3228) or fax (888) 232-3299 (document no. 361100) or through CDC's World-Wide Web site http://www.cdc.gov/ncidod/diseases/flu/weekly.htm. From October through May, the information is updated weekly.

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Chlamydia Screening Practices of Primary-Care Providers — Wake County, North Carolina, 1996

Genital chlamydial infection is the most commonly reported infectious disease in the United States (*1*), and the prevalence of *Chlamydia trachomatis* genital infections in sexually active adolescents is 5%–15%, regardless of socioeconomic status (*2–4*). Although chlamydial infections frequently are asymptomatic in women, untreated infections can cause extensive inflammation and scarring of the female reproductive tract (*5*). In addition, chlamydial infections may facilitate human immunodeficiency virus transmission (*6*). Because of the risks and complications associated with this infection, CDC and the U.S. Preventive Services Task Force have recommended that all sexually active adolescent women undergoing a pelvic examination receive routine screening for chlamydia (*7,8*). To characterize the chlamydia screening practices of primary-care providers in Wake County, North Carolina, a county with high reported rates of chlamydial genital infection, the Wake County Human Services Public Health Center conducted a survey of primary-care providers during August–October 1996. This report summarizes the results of that survey, which document missed opportunities for the detection of chlamydia infection by health-care providers in both public and private practices.

A list of all primary-care practices in Wake County (1995 population: 512,944) was compiled using the county telephone directory and the physician registry from the North Carolina Medical Society. Primary-care practices included private physician offices, urgent-care centers, local health department clinics, hospital emergency departments and outpatient clinics, university health centers, community health centers, health maintenance organization (HMO) clinics, and nonprofit clinics (e.g., Planned Parenthood). Managed care was defined as a either a free-standing HMO clinic (e.g., Kaiser Permanente) or a practice participating in a preferred provider organization (PPO). A questionnaire was mailed to a total of 159 primary-care practices in Wake County, of which 127 (80%) responded; of these, 117 (92%) practices reported serving adolescent patients (aged 12–19 years). Routine chlamydia screening was defined as the performance of chlamydia testing during all or annual pelvic examinations.

Of the 117 responding practices that served adolescents, 94 (80%) reported that they performed chlamydia testing, and 34 (29%) reported that they routinely screened adolescent women. Practices that described their financial charter as private-for-profit were less likely to screen routinely than other practices (e.g., private nonprofit, health department, community health services, and university health centers) (15% versus 77%; prevalence ratio [PR]=0.2; 95% confidence interval [CI]=0.1–0.3) (Table 1). Practices with any patients insured through managed care were less likely to screen than those without managed-care patients (20% versus 58%; PR=0.3; 95% CI=0.2–0.6) or if they served patients with fee-for-service private insurance (20% versus 65%; PR=0.3; 95% CI=0.2–0.5). Practices were less likely to screen routinely if they reported lower proportions of non-Hispanic blacks (19% versus 39%; PR=0.5; 95% CI=0.2–0.9) or Hispanics (14% versus 41%; PR=0.3; 95% CI=0.2–0.8). Practices without written protocols for chlamydia testing were less likely to test routinely than practices with written protocols (17% versus 59%; PR=0.4; 95% CI=0.2–0.7). The proportion of practices conducting routine screening were similar in urban and rural (outside of the two main metropolitan areas, Raleigh and Cary) locations, by number of patient visits per year,

Chlamydia Screening Practices — Continued

TABLE 1. Number of primary-care providers serving adolescents and performing routine chlamydia testing, by selected characteristics — Wake County, North Carolina, 1996

Characteristic	No. providers (n=117)	Performing routine screening (n=34)	
		No.	(%)
Financial charter			
Private, for profit	91	14	(15)
Private, non-profit	9	8	(89)
Health department	9	7	(78)
Community health clinic	2	2	(100)
University health center	6	3	(50)
Type of medical specialty			
Family practice	26	4	(15)
Obstetrics/gynecology	27	6	(22)
Pediatrics	20	5	(25)
Internal medicine	10	1	(10)
Infectious disease	1	0	(0)
Combined specialties	6	1	(17)
Health department clinic	9	7	(78)
General medical or emergency care	18	10	(56)
Participates in managed care*			
Yes	82	16	(20)
No	24	14	(58)
Accepts fee-for-service private insurance*			
Yes	86	17	(20)
No	20	13	(65)
Accepts Medicaid*			
Yes	59	16	(27)
No	47	14	(30)
Racial/ethnic† distribution of providers' patient populations§			
White, non-Hispanic			
Median proportion or higher (≥68%)¶	50	7	(14)
Less than median (<68%)	49	22	(45)
Black, non-Hispanic			
Median proportion or higher (≥25%)	51	20	(39)
Less than median (<25%)	48	9	(19)
Hispanic			
Median proportion or higher (≥2%)	56	23	(41)
Less than median (<2%)	43	6	(14)
Written protocol for chlamydia testing			
Yes	29	17	(59)
No	82	14	(17)
Unknown	6	4	(67)
Location of practice			
Urban	102	30	(29)
Rural	15	4	(27)

*Information from 11 offices missing.
†Numbers for races other than black and white were too small for meaningful analysis.
§Information from 18 offices missing.
¶Proportions used to make dichotomous variables for the racial/ethnic distributions of the providers' clientele are based on the medians of patients of those racial/ethnic groups examined by all offices.

Chlamydia Screening Practices — Continued

or by medical specialty. A multivariate logistic regression model was constructed using backward elimination beginning with the variables identified as significant on univariate analysis. Based on the multivariate analysis, the only characteristics significantly associated with lack of routine screening were private-for-profit financial charter (odds ratio [OR]=0.1; 95% CI=0.02–0.17) and a low proportion of Hispanic patients (OR=0.3; 95% CI=0.1–0.9).

Of the 60 practices that provided chlamydia testing but did not provide routine testing of adolescents during all or annual pelvic examinations, all reported testing for chlamydia if signs and symptoms of infection were present; 58 (97%) if the patient reported that his/her partner had a chlamydial infection; 12 (20%) if the patient reported a new sex partner; and 18 (30%) if the adolescent reported multiple sex partners.

Approximately one fourth (23%) of practices serving adolescents reported that any of their clinicians had received any kind of continuing medical education that addressed genital chlamydial infections or pelvic inflammatory disease (PID) during the preceding year. Thirty-five percent expressed interest in obtaining continuing medical education in chlamydia or PID.

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Editorial Note: In November 1996, in a report documenting the high prevalence of sexually transmitted diseases (STDs) among adolescents in the United States, the Institute of Medicine recommended improving clinical STD services for this population, especially within the private sector (*9*). Screening and treatment programs are effective in decreasing chlamydia prevalence in adolescent women (*3,4*) and in decreasing the incidence of PID (*10*).

This report documents low rates of routine chlamydia screening of sexually active adolescent women in an area with known high reported rates of infection. In Wake County, during 1996–1997, the prevalence of chlamydia infection in female adolescents attending family-planning clinics or STD clinics was 10% and 17%, respectively (North Carolina Chlamydia Prevention Program, unpublished data, 1997). Routine chlamydia screening was associated with the clinics' financial charters and with patients' insurance, race, and ethnicity. Some third-party payers in the county (e.g., Medicaid, Kaiser Permanente, some Blue Cross/Blue Shield plans, and some PPOs) already reimburse for chlamydia testing during annual pelvic examinations. Clinicians may have believed that they could predict their patients' risk for chlamydial infection based on their insurance status, race, and ethnicity. However, among sexually active adolescent women, there is a high prevalence of chlamydial infection independent of their demographic factors (*2–4*).

Local health departments in North Carolina in areas with high prevalences of STDs are informing private physicians of the problem and encouraging additional testing, treatment, and reporting. In addition, plans are under way to assess specific barriers to chlamydia screening of adolescents.

Coordinated efforts between the private and public sectors are necessary to implement recommendations of the Institute of Medicine for STD services for adolescents. Managed-care organizations are beginning to address the importance of routine

Chlamydia Screening Practices — Continued

chlamydia testing for adolescent women: beginning in 1997, a new clinical performance measurement of the Health Employer Data Information Set has been implemented to assess the ability of managed-care organizations to perform and monitor chlamydia tests annually for enrolled women aged <25 years. For those settings in which pelvic examinations for adolescent women are not feasible, new diagnostic techniques, such as urine chlamydia testing using DNA amplification, may increase the availability of services. Primary-care providers serving adolescent women need to be educated about the risk for chlamydial infection in this population and need to be encouraged to perform routine screening for all sexually active adolescent women, regardless of symptoms or risk factors.

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Pertussis Outbreak — Vermont, 1996

Pertussis is increasingly recognized as a disease that affects older children and adults, including fully vaccinated persons (*1*). This report describes a statewide outbreak of pertussis in Vermont (1995 population: 584,771) in 1996 in a highly vaccinated population, affecting primarily school-aged children and adults, and underscores the need to include pertussis in the differential diagnosis of cough illness in persons of all ages.

In Vermont, a clinical case of pertussis is defined as a cough illness lasting ≥14 days and at least one of the following symptoms: paroxysmal cough, whoop, or posttussive vomiting. A confirmed case of pertussis requires a positive laboratory finding either by culture or polymerase chain reaction (PCR), or the patient must meet the clinical case definition for pertussis and have had direct contact with a person with laboratory-confirmed pertussis.

Pertussis Outbreak — Continued

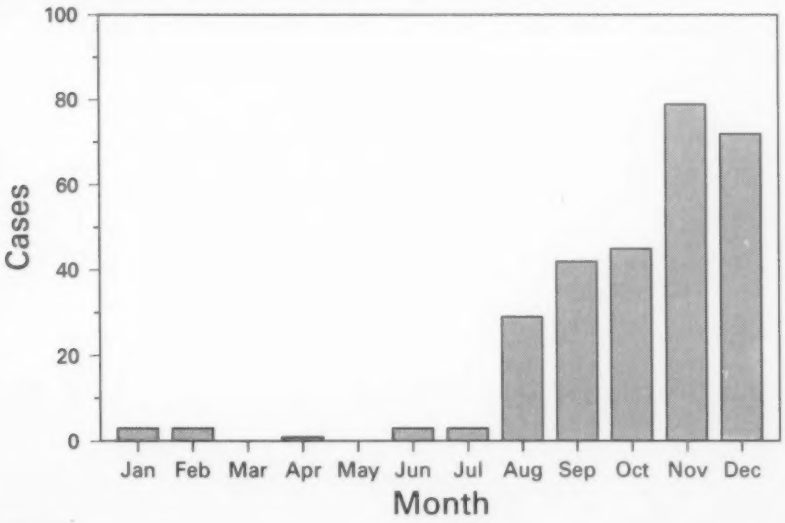
During January–June 1996, a total of 10 cases of pertussis were confirmed in Vermont, including five culture-confirmed cases (Figure 1). During July 1996, three additional culture-confirmed cases were reported, all in infants aged <4 months. None of the three infants attended day care. On July 30, 1996, a pertussis alert was mailed to all primary-care and emergency department physicians in Vermont, advising them of these cases and requesting that pertussis be considered in the differential diagnosis of patients of all ages with persistent cough illness.

During 1996, a total of 280 cases (incidence rate: 47.6 per 100,000 population) were identified throughout the state, including 165 laboratory-confirmed cases (160 by positive culture result and five by PCR). Ages of case-patients ranged from 27 days to 87 years: 12 (4%) were aged <1 year; 32 (11%), aged 1–4 years; 42 (15%), aged 5–9 years; 129 (46%), aged 10–19 years; and 65 (23%), aged ≥20 years. Children aged 10–14 years accounted for 36% of all cases and for the highest incidence rate (235 per 100,000 population) (Figure 2).

Pertussis cases occurred in children and/or adults in 69 schools, (range: 1–19 cases per facility). Among 171 cases identified in school-aged children (i.e., aged 5–19 years), most (64%) were culture-confirmed. Of the 65 case-patients aged ≥20 years, 46 (71%) occurred in persons reporting contact with children who had confirmed pertussis or cough illness, including parents (21), neighbors or relatives (12), teachers (six), child-care providers (four), and school bus drivers (three).

Symptoms of case-patients included paroxysmal coughing (93%), post-tussive vomiting (54%), and whoops (39%). The median duration of cough was reported as 33 days. Twelve (4%) case-patients were hospitalized, and six (2%) had radiologically confirmed pneumonia.

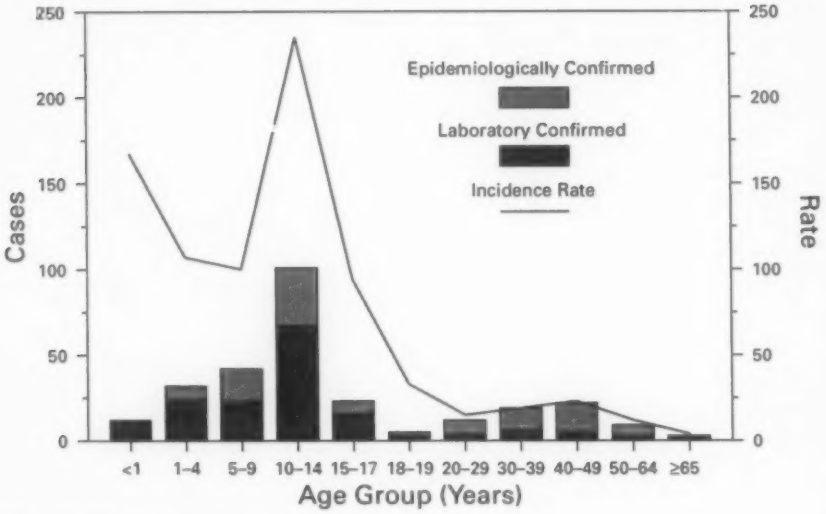
FIGURE 1. Number of pertussis cases* — Vermont, 1996



*n=280.

Pertussis Outbreak — Continued

FIGURE 2. Pertussis rate* and number of confirmed pertussis cases, by age group — Vermont, 1996



*Per 100,000 population.

Among 19 case-patients aged 7–47 months who were eligible to have received three or more doses of pertussis vaccine, five (26%) had received less than 3 doses. Of the 155 (99%) case-patients aged 7–18 years whose vaccination status was known, 106 (68%) had received four or more doses of pertussis-containing vaccine. All case-patients reportedly had received pertussis vaccine in the form of diphtheria and tetanus toxoids and whole-cell pertussis vaccine (DTP); none had received any doses of diphtheria and tetanus toxoids and acellular pertussis vaccine (DTaP).

VDH mailed alerts to all primary-care and emergency-department physicians on July 30, October 30, and December 10 to update them on the epidemiology of the outbreak. Separate mailings were sent to school nurses, school principals, home-schooling parents, and child-care providers. When a case was identified in a school, letters were sent to parents of schoolchildren to inform them of the illness, describe symptoms of pertussis, and encourage parents to have symptomatic children evaluated by a physician. Persons having had direct contact with respiratory secretions of case-patients were identified and referred for prophylaxis. When two cases were reported within the same elementary school classroom, classmates were referred for prophylaxis with antibiotics. Parents and students were asked about special small group settings, such as sports teams or school clubs, and close contacts from these groups were referred for prophylaxis with antibiotics.

The number of reported pertussis cases decreased steadily in 1997. During January–June 1997, a total of 172 confirmed cases were reported, representing a 36% decrease from the last 6 months of 1996.

Pertussis Outbreak — Continued

Reported by: S Schoenfeld, MSPH, JK Carney, MD, E Hansen, MSN, R Cameron, MJ Celotti, MS, Vermont Dept of Health. Childhood Vaccine Preventable Diseases Br, Epidemiology and Surveillance Div, National Immunization Program, CDC.

Editorial Note: In 1996, the incidence of pertussis in Vermont (47.6 per 100,000) was higher than any other state (national incidence: 2.9 per 100,000). Aggressive case finding and testing helped document and control this outbreak. The high incidence of pertussis in school-aged children was identified based on a strict case definition and was consistent with previous reports of outbreaks in this age group (*2*). In 1996, school-aged children accounted for 61% of all reported cases in Vermont, compared with 37% of all cases in the United States (CDC, unpublished data, 1996). Approximately half of the school-aged children with pertussis were fully vaccinated. Waning immunity following whole-cell pertussis vaccination accounts for some cases among vaccinated children in this age group (*3*). Although factors associated with the high incidence in children aged 10–14 years and lower rates in persons aged ≥15 years have not been determined, possible explanations include detection bias or a low incidence of disease among older adolescents because of immunity gained during previously undetected pertussis infection.

The lower attack rate among children aged <10 years suggests a substantial degree of protection from vaccination, despite the intensity of this outbreak. Vaccination rates in Vermont are among the highest in the United States; in 1996, 97% of children aged 19–35 months had received three or more doses of either diphtheria and tetanus toxoids (DT) or DTP (*4*). School-entry laws in Vermont require a minimum of three doses of a pertussis-containing vaccine, DT or Td (adult formulation of diphtheria and tetanus toxoids). By age 7 years, five doses of pertussis-containing vaccine are recommended for maximum protection. In Vermont, virtually all pediatric vaccines are supplied at no cost by the VDH.

Outbreaks of pertussis among school-aged children are difficult to contain, especially because available pertussis-containing vaccines are not approved for use on or after the seventh birthday, and "catch-up" doses cannot be provided for children aged ≥7 years who are not fully vaccinated, or to give booster doses to address waning immunity. Although public health measures to curtail outbreaks occurring in school-aged children include the prompt detection and treatment of cases and prophylaxis of their close contacts, these measures may be suboptimal in controlling pertussis outbreaks in settings where repeated exposures occur over an extended period. In addition, physicians may lack clinical experience with pertussis or do not maintain a high index of suspicion for the disease, particularly in vaccinated children and adults. Physicians may be reluctant to prescribe antibiotic prophylaxis for contacts of unconfirmed cases because of concerns about the over use of antibiotics or the accuracy of the diagnosis when culture results are not available.

Laboratory confirmation of pertussis cases is subject to multiple constraints. Testing methodologies that provide a more rapid response than culture are either unreliable, costly, or not yet readily available. Culture remains the most common method of confirmation but is considered no more than 50% sensitive (*5*). Culture is more likely to be positive when the specimen is obtained in the early stages of cough illness; nonetheless, 58% of cases in Vermont were confirmed by culture. Confirmation of cases among vaccinated adolescents and adults was an important adjunct in this investigation and supported the implementation of public health recommendations.

Pertussis Outbreak — Continued

Because of the cyclical nature of pertussis outbreaks, periodic reemergence of pertussis epidemics can be anticipated (*6*). Health professionals in the public and private sectors should assist communities in achieving the highest possible vaccination levels. Even among highly vaccinated populations, waning immunity leads to a substantial population of susceptible older children and adults. During pertussis outbreaks, infection in these age groups may result in exposure of unprotected infants at risk for the most severe consequences of infection (*7*). Physicians should include pertussis in the differential diagnosis of coughing illness in persons of all ages, use diagnostic testing appropriately, and report suspected cases promptly to the health department. When pertussis is confirmed in the community, health departments should alert providers and the public. Until approved booster vaccination for pertussis is available to protect older children and adults, the prompt diagnosis and treatment of cases and prophylaxis of contacts are the only options for limiting transmission.

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Notices to Readers

Immunization Hotline

CDC recently upgraded its immunization hotline services. The national immunization information hotline is now available to respond to questions about vaccinations, vaccine-preventable diseases, and vaccines.

The hotline serves consumers and health-care professionals. The most frequently asked questions include those related to new vaccines, new vaccination schedules, and vaccine safety. To access the information, call (800) 232-2522 (in Spanish [800] 232-0233). The hotline operates from 8 a.m. to 11 p.m., Monday through Friday, with a voice-mail system available at all other times.

Fourth International Conference on HFRS and Hantaviruses

CDC will cosponsor the 4th International Conference on HFRS and Hantaviruses March 5–7, 1998, in Atlanta. The conference will highlight scientific information

Notices to Readers — Continued

concerning 1) clinical aspects, 2) laboratory diagnostics, 3) pathogenesis and immune response, 4) hantavirus ecology, 5) hantavirus epidemiology, 6) molecular biology and cell interactions, 7) health education and prevention, and 8) antiviral and vaccine development.

The conference will include plenary sessions with invited speakers and oral and poster sessions based on accepted abstracts. The deadline for abstract submission is October 31, 1997. Abstract forms and additional information are available from CDC's Special Pathogens Branch, Division of Viral and Rickettsial Diseases, National Center for Infectious Diseases, Mailstop A-26, 1600 Clifton Road, N.E., Atlanta, GA 30333; telephone (404) 639-1510; fax: (404) 639-1509; e-mail akc8@cdc.gov. Information also is available from the World-Wide Web at http://www.cdc.gov/ncidod/diseases/hanta/hantconf.htm

Satellite Broadcast on Adolescents with Sexually Transmitted Diseases

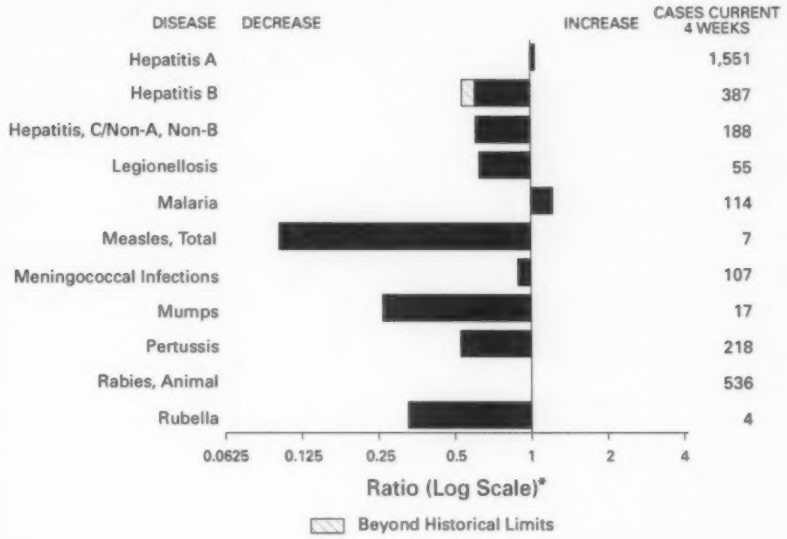
"Caring for Adolescents with STDs," a satellite broadcast, will be presented to sites nationwide Thursday, October 9, 1997, from noon to 3:30 p.m. eastern daylight time. Cosponsors are CDC and the National Network of STD/HIV Training Centers.

Information about registration, satellite, and Continuing Medical Education credits is available from the Prevention Training Center in each Public Health region: Region I (Connecticut, Massachusetts, Maine, New Hampshire, Rhode Island, and Vermont), telephone (617) 983-6945; Region II (New Jersey, New York, Puerto Rico, and Virgin Islands), telephone (518) 474-1692; Region III (District of Colombia, Delaware, Maryland, Pennsylvania, Virginia, and West Virginia), telephone (410) 396-4448; Region IV (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, and Tennessee), telephone (205) 930-1196; Region V (Illinois, Indiana, Michigan, Minnesota, Ohio, and Wisconsin), telephone (513) 558-3197; Region VI (Arkansas, Louisiana, New Mexico, Oklahoma, and Texas), telephone (214) 819-1947; Region VII (Iowa, Kansas, Missouri, and Nebraska), telephone (314) 362-4413; Region VIII (Colorado, Montana, North Dakota, South Dakota, Utah, and Wyoming), telephone (303) 436-7226; Region IX (Arizona, California, Hawaii, and Nevada), telephone (415) 554-9630; and Region X (Alaska, Idaho, Oregon, and Washington), telephone (206) 720-4222.

Erratum: Vol. 46, No. 35

In the article, *Staphylococcus aureus* with Reduced Susceptibility to Vancomycin—United States, 1997," an error appears in the second sentence of the second paragraph. The sentence should read, "During *January–June 1997*, the patient had been treated ..."

FIGURE I. Selected notifiable disease reports, comparison of provisional 4-week totals ending August 30, 1997, with historical data — United States



*Ratio of current 4-week total to mean of 15 4-week totals (from previous, comparable, and subsequent 4-week periods for the past 5 years). The point where the hatched area begins is based on the mean and two standard deviations of these 4-week totals.

TABLE I. Summary — provisional cases of selected notifiable diseases, United States, cumulative, week ending August 30, 1997 (35th Week)

	Cum. 1997		Cum. 1997
Anthrax	-	Plague	2
Brucellosis	47	Poliomyelitis, paralytic	-
Cholera	6	Psittacosis	31
Congenital rubella syndrome	3	Rabies, human	2
Cryptosporidiosis*	982	Rocky Mountain spotted fever (RMSF)	257
Diphtheria	5	Streptococcal disease, invasive Group A	1,030
Encephalitis: California*	36	Streptococcal toxic-shock syndrome*	25
eastern equine*	2	Syphilis, congenital¶	190
St. Louis*	1	Tetanus	29
western equine*	1	Toxic-shock syndrome	83
Hansen Disease	70	Trichinosis	6
Hantavirus pulmonary syndrome*†	15	Typhoid fever	206
Hemolytic uremic syndrome, post-diarrheal*	32	Yellow fever	-
HIV infection, pediatric*§	173		

-:no reported cases
*Not notifiable in all states.
†Updated weekly from reports to the Division of Viral and Rickettsial Diseases, National Center for Infectious Diseases (NCID).
§Updated monthly to the Division of HIV/AIDS Prevention–Surveillance and Epidemiology, National Center for HIV, STD, and TB Prevention (NCHSTP), last update August 26, 1997.
¶Updated from reports to the Division of STD Prevention, NCHSTP.

TABLE II. Provisional cases of selected notifiable diseases, United States, weeks ending August 30, 1997, and August 31, 1996 (35th Week)

Reporting Area	AIDS		Chlamydia		*Escherichia coli* O157:H7		Gonorrhea		Hepatitis C/NA,NB	
	Cum. 1997*	Cum. 1996	Cum. 1997	Cum. 1996	NETSS† Cum. 1997	PHLIS§ Cum. 1997	Cum. 1997	Cum. 1996	Cum. 1997	Cum. 1996
UNITED STATES	39,488	45,215	292,018	289,553	1,389	827	182,200	211,433	2,080	2,360
NEW ENGLAND	1,740	1,842	11,675	11,450	120	59	3,952	4,348	46	66
Maine	42	31	648	610	10	-	37	34	-	-
N.H.	26	58	510	482	6	7	67	107	8	7
Vt.	30	14	268	268	6	1	36	40	2	17
Mass.	804	871	4,851	4,476	68	51	1,480	1,444	29	36
R.I.	113	123	1,301	1,324	3	-	297	344	7	6
Conn.	925	745	4,097	4,290	27	-	2,035	2,379	-	-
MID. ATLANTIC	12,364	12,613	39,327	42,332	72	28	23,846	28,002	224	186
Upstate N.Y.	1,935	1,670	N	N	52	6	3,862	5,061	170	148
N.Y. City	6,469	7,052	19,959	22,025	8	-	8,880	10,204	-	3
N.J.	2,526	2,392	6,114	8,166	12	16	4,756	5,760	-	-
Pa.	1,434	1,499	13,254	12,141	N	6	6,348	6,977	54	35
E.N. CENTRAL	2,905	3,602	39,064	57,431	261	143	24,646	38,402	372	336
Ohio	626	809	7,361	13,910	61	32	5,096	9,841	12	24
Ind.	411	459	5,958	6,483	46	-	3,953	4,100	10	7
Ill.	1,186	1,575	7,170	16,240	44	-	3,474	11,442	56	64
Mich.	499	566	12,633	13,686	110	78	9,521	9,787	294	241
Wis.	183	193	5,942	7,112	N	33	2,602	3,232	-	-
W.N. CENTRAL	729	1,047	15,606	21,241	313	221	7,272	10,235	112	66
Minn.	138	188	U	3,560	147	135	U	1,610	3	1
Iowa	79	69	2,857	2,643	69	28	758	668	22	30
Mo.	318	537	7,783	8,586	34	44	4,883	5,742	73	17
N. Dak.	11	11	520	604	9	6	36	21	2	-
S. Dak.	7	9	851	963	19	-	93	120	-	-
Nebr.	72	74	1,147	1,895	23	-	426	703	2	6
Kans.	104	159	2,448	2,990	12	8	1,076	1,371	10	12
S. ATLANTIC	9,404	11,154	61,601	33,332	135	85	59,420	62,344	193	130
Del.	175	212	1,276	1,148	3	3	802	984	-	-
Md.	1,167	1,320	4,790	U	12	3	8,896	7,051	11	2
D.C.	657	803	N	N	2	-	2,600	3,043	-	-
Va.	769	793	7,868	7,463	N	18	5,215	6,173	20	10
W. Va.	79	83	2,000	1,461	N	1	635	510	13	8
N.C.	598	604	12,340	U	43	26	12,079	12,727	38	34
S.C.	545	583	8,198	U	7	7	7,522	7,288	30	21
Ga.	1,156	1,641	9,117	7,626	30	-	10,204	12,711	U	-
Fla.	4,258	5,115	16,012	15,634	37	27	11,467	11,857	81	55
E.S. CENTRAL	1,370	1,558	22,505	20,296	72	30	22,396	21,531	240	412
Ky.	234	269	4,350	4,513	21	-	2,769	2,761	11	26
Tenn.	576	578	8,526	8,860	37	30	7,228	7,658	169	309
Ala.	333	431	5,673	5,597	11	-	7,902	9,013	6	3
Miss.	227	280	3,956	1,326	3	-	4,497	2,099	54	74
W.S. CENTRAL	4,187	4,519	39,634	37,724	45	8	25,012	26,041	287	249
Ark.	160	185	905	1,210	9	1	1,893	2,807	1	8
La.	716	1,028	6,132	4,790	6	3	5,733	5,019	140	141
Okla.	215	187	5,016	5,194	3	1	3,202	3,266	7	1
Tex.	3,096	3,119	27,581	26,530	27	3	14,184	14,949	139	99
MOUNTAIN	1,114	1,317	15,304	16,857	165	88	4,944	5,271	285	412
Mont.	33	23	897	823	18	-	31	24	15	11
Idaho	37	28	993	1,040	16	11	78	75	39	91
Wyo.	13	4	384	424	12	-	37	29	129	129
Colo.	278	360	1,896	1,443	66	42	1,319	1,110	27	37
N. Mex.	112	116	2,178	2,633	6	4	891	535	35	61
Ariz.	273	372	6,389	7,486	N	23	1,920	2,606	24	47
Utah	88	124	1,110	1,002	37	-	170	200	3	18
Nev.	280	290	1,657	2,006	10	8	498	692	13	18
PACIFIC	5,675	7,562	47,302	48,890	206	165	10,712	15,259	321	503
Wash.	457	507	6,024	6,522	49	54	1,260	1,413	19	39
Oreg.	222	338	3,273	3,712	56	63	503	572	2	6
Calif.	4,918	6,560	36,015	36,720	90	41	8,393	12,671	196	319
Alaska	36	23	985	788	11	1	254	290	-	2
Hawaii	42	134	1,005	1,148	N	6	302	313	104	137
Guam	2	4	31	259	N	-	3	46	-	6
P.R.	1,382	1,511	U	U	28	U	403	441	82	125
V.I.	75	17	N	N	N	U	-	-	-	-
Amer. Samoa	-	-	-	-	N	U	-	-	-	-
C.N.M.I.	1	-	N	N	N	U	17	11	2	-

N: Not notifiable U: Unavailable -: no reported cases C.N.M.I.: Commonwealth of Northern Mariana Islands

*Updated monthly to the Division of HIV/AIDS Prevention–Surveillance and Epidemiology, National Center for HIV, STD, and TB Prevention, last update August 26, 1997.

†National Electronic Telecommunications System for Surveillance.

§Public Health Laboratory Information System.

TABLE II. (Cont'd.) Provisional cases of selected notifiable diseases, United States, weeks ending August 30, 1997, and August 31, 1996 (35th Week)

Reporting Area	Legionellosis		Lyme Disease		Malaria		Syphilis (Primary & Secondary)		Tuberculosis		Rabies, Animal
	Cum. 1997	Cum. 1996	Cum. 1997	Cum. 1996	Cum. 1997	Cum. 1996	Cum. 1997	Cum. 1996	Cum. 1997	Cum. 1996	Cum. 1997
UNITED STATES	567	586	4,841	8,897	1,081	1,021	5,404	8,053	11,279	12,779	5,038
NEW ENGLAND	44	32	1,179	2,703	61	38	102	113	295	285	782
Maine	2	2	8	23	1	6	-	-	11	16	143
N.H.	5	1	17	32	6	1	-	1	10	9	28
Vt.	9	4	6	14	2	2	-	-	4	1	94
Mass.	10	16	192	132	21	13	47	53	166	137	162
R.I.	5	9	220	331	5	6	2	1	24	24	18
Conn.	13	N	736	2,171	26	10	53	58	80	98	337
MID. ATLANTIC	100	138	2,847	5,106	255	303	257	336	2,110	2,343	1,007
Upstate N.Y.	27	47	1,188	2,480	47	55	22	52	287	275	757
N.Y. City	4	10	30	270	141	182	57	98	1,095	1,209	U
N.J.	12	9	706	1,084	49	48	101	116	426	488	109
Pa.	57	72	923	1,272	18	18	77	70	302	371	141
E.N. CENTRAL	172	189	56	324	94	129	425	1,207	1,099	1,364	106
Ohio	81	61	36	17	14	9	126	463	201	196	73
Ind.	30	38	17	15	11	12	98	155	94	119	10
Ill.	6	27	3	8	30	65	43	335	539	746	8
Mich.	47	32	-	6	30	29	93	122	181	233	15
Wis.	8	31	U	278	9	14	65	132	84	70	-
W.N. CENTRAL	45	30	82	119	37	31	103	247	369	326	329
Minn.	1	3	56	38	15	14	U	31	99	77	34
Iowa	11	6	5	15	9	2	6	15	43	44	117
Mo.	13	5	15	36	6	8	71	174	151	133	15
N. Dak.	2	-	-	-	2	1	-	-	8	6	47
S. Dak.	2	2	1	-	-	-	-	-	9	15	51
Nebr.	12	11	2	2	1	2	5	10	14	14	1
Kans.	4	3	3	28	4	4	21	17	45	37	64
S. ATLANTIC	84	77	427	431	231	176	2,241	2,603	2,163	2,402	2,066
Del.	7	9	30	147	3	3	17	26	11	30	47
Md.	17	16	294	170	65	51	626	465	212	198	369
D.C.	3	7	7	3	11	7	77	96	60	92	4
Va.	16	13	35	30	50	31	166	296	194	201	414
W. Va.	N	N	3	10	-	3	3	2	40	43	65
N.C.	11	7	24	58	12	19	504	715	280	326	621
S.C.	3	4	2	3	11	9	267	276	208	245	128
Ga.	-	3	1	1	23	16	358	463	418	440	215
Fla.	27	18	31	9	56	37	223	264	740	827	203
E.S. CENTRAL	35	33	51	59	21	26	1,224	1,740	854	937	216
Ky.	5	2	7	20	4	7	100	96	120	158	23
Tenn.	24	17	27	17	6	10	534	572	282	318	130
Ala.	2	3	5	6	8	3	314	375	296	296	63
Miss.	4	11	12	16	3	6	276	697	156	165	-
W.S. CENTRAL	13	17	55	81	15	24	770	1,287	1,512	1,448	227
Ark.	-	1	15	20	4	-	71	184	131	126	27
La.	2	1	2	1	8	4	239	362	138	11	2
Okla.	3	5	11	13	3	-	83	134	118	115	74
Tex.	8	10	27	47	-	20	377	607	1,125	1,196	124
MOUNTAIN	39	31	13	6	57	40	111	105	327	418	110
Mont.	1	1	-	-	2	6	-	-	7	14	32
Idaho	2	-	2	-	-	-	-	4	8	6	-
Wyo.	1	3	3	3	2	3	-	2	2	5	24
Colo.	14	7	4	-	26	16	9	24	61	54	-
N. Mex.	2	1	1	1	8	2	8	4	18	58	9
Ariz.	8	12	1	-	7	5	81	57	168	162	38
Utah	7	2	-	1	3	4	5	2	17	39	3
Nev.	4	5	2	1	9	4	8	12	46	80	4
PACIFIC	35	39	131	68	310	254	171	415	2,560	3,256	195
Wash.	6	5	6	11	16	15	8	8	198	180	-
Oreg.	-	-	15	14	15	16	5	6	109	117	8
Calif.	28	30	110	42	274	213	156	399	2,069	2,782	165
Alaska	-	1	-	-	3	3	1	-	56	54	22
Hawaii	1	3	-	1	2	7	1	2	118	123	-
Guam	-	1	-	-	-	-	-	3	5	55	-
P.R.	-	-	-	-	5	1	169	159	129	130	46
V.I.	-	-	-	-	-	-	-	-	-	-	-
Amer. Samoa	-	-	-	-	-	-	-	-	-	-	-
C.N.M.I.	-	-	-	-	-	-	9	1	2	-	-

N: Not notifiable U: Unavailable -: no reported cases

TABLE III. Provisional cases of selected notifiable diseases preventable by vaccination, United States, weeks ending August 30, 1997, and August 31, 1996 (35th Week)

Reporting Area	*H. influenzae*, invasive		Hepatitis (Viral), by type				Measles (Rubeola)					
			A		B		Indigenous		Imported†		Total	
	Cum. 1997*	Cum. 1996	Cum. 1997	Cum. 1996	Cum. 1997	Cum. 1996	1997	Cum. 1997	1997	Cum. 1997	Cum. 1997	Cum. 1996
UNITED STATES	733	755	18,238	18,242	5,707	6,422	-	60	-	42	102	426
NEW ENGLAND	41	25	437	238	102	146	-	11	-	6	17	14
Maine	4	-	47	13	6	2	-	-	-	1	1	-
N.H.	5	10	21	10	9	9	-	1	-	-	1	-
Vt.	3	1	9	5	5	11	-	-	-	-	-	2
Mass.	25	13	169	124	38	50	-	10	-	4	14	11
R.I.	2	1	107	9	12	9	-	-	-	-	-	-
Conn.	2	-	84	77	32	65	-	-	-	1	1	1
MID. ATLANTIC	87	156	1,288	1,227	841	984	-	14	-	8	22	35
Upstate N.Y.	21	39	203	281	179	235	-	2	-	3	5	9
N.Y. City	24	42	482	376	305	354	-	5	-	2	7	11
N.J.	32	39	193	249	155	192	-	2	-	-	2	3
Pa.	10	36	410	321	202	203	-	5	-	3	8	12
E.N. CENTRAL	120	129	1,731	1,707	605	744	-	6	-	3	9	17
Ohio	70	74	234	569	58	89	-	-	-	-	-	2
Ind.	13	7	209	227	72	100	-	-	-	-	-	-
Ill.	26	35	401	468	148	223	-	6	-	1	7	3
Mich.	10	8	787	290	297	265	-	-	-	2	2	3
Wis.	1	5	100	153	30	67	-	-	-	-	-	9
W.N. CENTRAL	41	34	1,453	1,514	313	330	-	9	-	3	12	19
Minn.	27	21	132	89	28	39	-	-	-	3	3	16
Iowa	6	3	300	243	28	45	-	-	-	-	-	-
Mo.	4	7	727	775	222	196	-	1	-	-	1	2
N. Dak.	-	-	10	35	3	1	U	-	U	-	-	-
S. Dak.	2	1	18	40	1	3	-	8	-	-	8	-
Nebr.	1	1	70	104	10	22	-	-	-	-	-	-
Kans.	1	1	196	228	21	24	U	-	U	-	-	1
S. ATLANTIC	127	139	1,197	782	859	877	-	1	-	9	10	10
Del.	-	2	24	11	4	6	-	-	-	-	-	1
Md.	46	49	164	130	118	117	-	-	-	2	2	2
D.C.	2	5	17	22	25	27	-	-	-	1	1	-
Va.	10	6	149	110	85	96	-	-	-	1	1	2
W. Va.	3	6	8	12	11	18	-	-	-	-	-	-
N.C.	17	22	138	101	177	254	-	-	-	1	1	2
S.C.	4	4	74	42	71	57	-	-	-	1	1	-
Ga.	24	31	260	86	90	8	-	-	-	1	1	2
Fla.	21	14	363	268	278	294	-	1	-	2	3	1
E.S. CENTRAL	37	22	427	972	459	545	-	-	-	-	-	1
Ky.	5	5	57	30	26	50	-	-	-	-	-	-
Tenn.	24	8	267	641	310	298	-	-	-	-	-	1
Ala.	8	8	62	139	46	43	-	-	-	-	-	-
Miss.	-	1	41	162	77	154	-	-	-	-	-	-
W.S. CENTRAL	34	32	3,758	3,542	707	768	-	3	-	4	7	24
Ark.	1	-	181	314	41	55	-	-	-	-	-	-
La.	7	3	143	109	96	84	-	-	-	-	-	-
Okla.	23	25	1,094	1,538	28	24	-	-	-	-	-	-
Tex.	3	4	2,340	1,581	542	605	-	3	-	4	7	24
MOUNTAIN	77	39	3,011	2,941	622	770	-	8	-	1	9	156
Mont.	-	-	59	82	7	8	-	-	-	-	-	-
Idaho	1	1	97	153	18	69	-	-	-	-	-	1
Wyo.	3	-	28	26	30	31	-	-	-	-	-	1
Colo.	12	11	302	307	114	88	-	-	-	-	-	7
N. Mex.	8	9	230	287	194	275	-	1	-	-	1	16
Ariz.	29	12	1,559	1,157	142	175	-	5	-	-	5	8
Utah	3	6	438	655	70	68	-	1	-	-	1	118
Nev.	21	-	298	274	47	56	-	1	-	1	2	5
PACIFIC	169	179	4,936	5,319	1,199	1,258	-	8	-	8	16	150
Wash.	3	2	361	329	49	63	-	2	-	-	2	38
Oreg.	29	24	250	632	69	80	-	-	-	-	-	12
Calif.	126	146	4,213	4,269	1,056	1,099	-	4	-	7	11	34
Alaska	4	5	25	33	17	8	-	-	-	-	-	63
Hawaii	7	2	87	56	8	8	-	2	-	1	3	3
Guam	-	-	-	6	1	-	U	-	U	-	-	-
P.R.	-	1	215	159	1,004	684	-	-	-	-	-	2
V.I.	-	-	-	29	-	26	-	-	-	-	-	-
Amer. Samoa	-	-	-	-	-	-	U	-	U	-	-	-
C.N.M.I.	6	10	1	1	34	5	U	1	U	-	1	-

N: Not notifiable U: Unavailable -: no reported cases

*Of 160 cases among children aged <5 years, serotype was reported for 84 and of those, 35 were type b.

†For imported measles, cases include only those resulting from importation from other countries.

TABLE III. (Cont'd.) Provisional cases of selected notifiable diseases preventable by vaccination, United States, weeks ending August 30, 1997, and August 31, 1996 (35th Week)

Reporting Area	Meningococcal Disease		Mumps			Pertussis			Rubella		
	Cum. 1997	Cum. 1996	1997	Cum. 1997	Cum. 1996	1997	Cum. 1997	Cum. 1996	1997	Cum. 1997	Cum. 1996
UNITED STATES	2,308	2,259	3	385	481	60	3,328	3,328	1	130	211
NEW ENGLAND	144	94	-	8	1	6	620	780	-	1	25
Maine	16	10	-	-	-	-	6	24	-	-	-
N.H.	13	3	-	-	-	3	80	69	-	-	-
Vt.	3	3	-	-	-	2	187	42	-	-	2
Mass.	71	36	-	2	1	1	321	611	-	1	20
R.I.	13	10	-	5	-	-	12	13	-	-	-
Conn.	28	32	-	1	-	-	14	21	-	-	3
MID. ATLANTIC	210	244	-	41	58	10	243	236	1	29	10
Upstate N.Y.	53	63	-	7	18	-	82	117	-	2	4
N.Y. City	38	37	-	3	14	-	56	22	1	27	4
N.J.	44	53	-	5	2	-	9	16	-	-	2
Pa.	75	91	-	26	24	10	96	81	-	-	-
E.N. CENTRAL	324	323	-	42	101	2	258	434	-	4	3
Ohio	126	119	-	18	35	2	105	158	-	-	-
Ind.	36	46	-	7	6	-	38	31	-	-	-
Ill.	97	90	-	7	19	-	40	93	-	1	1
Mich.	39	32	-	10	39	-	38	29	-	-	2
Wis.	26	36	-	-	2	-	35	123	-	3	-
W.N. CENTRAL	173	185	-	13	12	5	230	172	-	-	-
Minn.	29	25	-	5	3	-	142	127	-	-	-
Iowa	39	40	-	6	1	1	24	8	-	-	-
Mo.	77	70	-	-	5	4	40	20	-	-	-
N. Dak.	1	3	U	-	2	U	2	1	U	-	-
S. Dak.	4	9	-	-	-	-	3	3	-	-	-
Nebr.	8	16	-	2	-	-	6	5	-	-	-
Kans.	15	22	U	-	1	U	13	8	U	-	-
S. ATLANTIC	407	351	1	53	79	7	324	353	-	64	91
Del.	5	2	-	-	-	-	1	17	-	-	-
Md.	37	39	-	4	26	-	97	127	-	1	-
D.C.	1	5	-	-	-	-	3	-	-	-	1
Va.	38	41	-	9	12	-	34	40	-	1	2
W. Va.	14	13	-	-	-	-	6	2	-	-	-
N.C.	77	60	-	8	17	-	85	72	-	51	77
S.C.	44	42	-	10	5	5	20	20	-	9	1
Ga.	76	103	-	5	2	-	9	17	-	-	-
Fla.	115	46	1	17	17	2	69	58	-	2	10
E.S. CENTRAL	181	162	-	18	19	-	76	168	-	-	2
Ky.	38	21	-	3	-	-	21	134	-	-	-
Tenn.	71	47	-	3	1	-	28	15	-	-	-
Ala.	55	55	-	6	3	-	19	12	-	-	2
Miss.	17	39	-	6	15	-	8	7	-	-	N
W.S. CENTRAL	221	248	-	34	33	11	145	94	-	4	7
Ark.	27	28	-	1	1	5	21	3	-	-	-
La.	45	47	-	11	12	-	13	7	-	-	1
Okla.	25	24	-	-	-	5	21	8	-	-	-
Tex.	124	149	-	22	20	1	90	76	-	4	6
MOUNTAIN	138	135	2	52	20	17	880	298	-	5	6
Mont.	8	6	-	-	-	-	16	18	-	-	-
Idaho	8	20	-	2	-	-	546	92	-	1	2
Wyo.	2	3	-	1	-	-	6	3	-	-	-
Colo.	36	27	-	3	3	5	189	91	-	-	2
N. Mex.	22	21	N	N	N	4	66	40	-	-	-
Ariz.	39	30	-	31	1	6	30	16	-	4	1
Utah	11	12	1	8	3	1	13	10	-	-	-
Nev.	12	16	1	7	13	1	14	28	-	-	1
PACIFIC	510	517	-	124	158	2	554	793	-	23	67
Wash.	62	73	-	14	18	2	245	296	-	5	15
Oreg.	98	92	N	N	N	-	17	42	-	-	1
Calif.	344	343	-	90	117	-	267	430	-	10	48
Alaska	2	6	-	3	2	-	14	1	-	-	-
Hawaii	4	3	-	17	21	-	11	24	-	8	3
Guam	-	4	U	1	4	U	-	-	U	-	-
P.R.	9	11	-	5	1	-	-	2	-	-	-
V.I.	-	-	-	-	1	-	-	-	-	-	-
Amer. Samoa	-	-	U	-	-	U	-	-	U	-	-
C.N.M.I.	-	-	U	4	-	U	-	-	U	-	-

N: Not notifiable U: Unavailable -: no reported cases

TABLE IV. Deaths in 122 U.S. cities,* week ending August 30, 1997 (35th Week)

Reporting Area	All Causes, By Age (Years)						P&I† Total
	All Ages	>65	45-64	25-44	1-24	<1	
NEW ENGLAND	563	383	117	37	12	14	34
Boston, Mass.	135	89	24	8	3	11	12
Bridgeport, Conn.	35	24	6	4	1	-	4
Cambridge, Mass.	23	13	9	1	-	-	2
Fall River, Mass.	19	17	2	-	-	-	-
Hartford, Conn.	47	26	13	5	3	-	1
Lowell, Mass.	25	17	8	-	-	-	1
Lynn, Mass.	12	7	4	1	-	-	-
New Bedford, Mass.	20	19	1	-	-	-	1
New Haven, Conn.	38	23	11	3	1	-	4
Providence, R.I.	61	43	9	5	2	2	-
Somerville, Mass.	7	6	1	-	-	-	-
Springfield, Mass.	40	31	4	5	-	-	1
Waterbury, Conn.	26	21	4	-	1	-	3
Worcester, Mass.	75	47	21	5	1	1	5
MID. ATLANTIC	2,422	1,623	466	221	59	53	118
Albany, N.Y.	60	39	13	4	2	2	4
Allentown, Pa.	15	14	1	-	-	-	-
Buffalo, N.Y.	62	46	12	2	1	1	-
Camden, N.J.	22	13	6	3	-	-	2
Elizabeth, N.J.	19	12	2	4	-	1	-
Erie, Pa.	39	33	2	4	-	-	1
Jersey City, N.J.	34	23	6	4	1	-	1
New York City, N.Y.	1,108	732	227	103	25	21	46
Newark, N.J.	51	28	6	11	-	6	10
Paterson, N.J.	23	12	5	4	1	1	1
Philadelphia, Pa.	602	376	128	62	21	15	31
Pittsburgh, Pa.§	54	39	12	2	1	-	1
Reading, Pa.	4	4	-	-	-	-	2
Rochester, N.Y.	118	81	23	6	5	3	7
Schenectady, N.Y.	26	17	7	2	-	-	-
Scranton, Pa.	29	23	4	2	-	-	2
Syracuse, N.Y.	93	80	7	3	1	2	6
Trenton, N.J.	19	15	2	1	-	1	1
Utica, N.Y.	14	11	1	2	-	-	-
Yonkers, N.Y.	30	25	2	2	1	-	3
E.N. CENTRAL	1,928	1,305	357	158	51	57	101
Akron, Ohio	61	46	8	7	-	-	-
Canton, Ohio	42	31	8	3	-	-	3
Chicago, Ill.	348	211	67	47	19	4	26
Cincinnati, Ohio	89	69	10	2	3	5	12
Cleveland, Ohio	135	86	32	8	2	7	1
Columbus, Ohio	212	145	35	16	8	8	10
Dayton, Ohio	97	70	17	8	1	1	6
Detroit, Mich.	176	99	40	25	5	7	1
Evansville, Ind.	54	42	9	3	-	-	1
Fort Wayne, Ind.	57	44	8	4	-	1	3
Gary, Ind.	U	U	U	U	U	U	U
Grand Rapids, Mich.	39	27	3	3	1	5	3
Indianapolis, Ind.	187	125	39	11	4	8	9
Lansing, Mich.	49	34	10	3	1	1	4
Milwaukee, Wis.	133	97	27	4	1	4	9
Peoria, Ill.	41	29	9	-	1	2	5
Rockford, Ill.	44	29	8	4	2	1	1
South Bend, Ind.	30	24	4	1	-	1	2
Toledo, Ohio	81	63	12	3	2	1	5
Youngstown, Ohio	53	34	11	6	1	1	-
W.N. CENTRAL	781	544	131	57	20	19	33
Des Moines, Iowa	146	109	26	6	3	2	16
Duluth, Minn.	U	U	U	U	U	U	U
Kansas City, Kans.	31	19	8	2	1	1	-
Kansas City, Mo.	94	53	17	8	2	4	1
Lincoln, Nebr.	47	36	7	2	1	1	-
Minneapolis, Minn.	127	90	19	13	3	2	8
Omaha, Nebr.	68	48	13	4	2	1	3
St. Louis, Mo.	122	91	16	8	5	2	-
St. Paul, Minn.	59	41	10	4	1	3	2
Wichita, Kans.	87	57	15	10	2	3	3
S. ATLANTIC	1,284	818	267	127	46	24	61
Atlanta, Ga.	181	109	33	24	9	6	8
Baltimore, Md.	169	103	36	16	10	4	13
Charlotte, N.C.	83	63	11	6	2	1	6
Jacksonville, Fla.	123	84	25	8	2	3	2
Miami, Fla.	88	59	19	7	2	1	-
Norfolk, Va.	52	27	10	11	1	3	3
Richmond, Va.	71	47	15	4	5	-	3
Savannah, Ga.	55	42	10	2	-	1	4
St. Petersburg, Fla.	50	40	5	3	1	1	5
Tampa, Fla.	186	128	38	16	3	1	12
Washington, D.C.	213	109	65	25	11	3	5
Wilmington, Del.	13	7	-	5	-	-	-
E.S. CENTRAL	906	589	167	68	34	27	46
Birmingham, Ala.	189	126	34	16	8	3	12
Chattanooga, Tenn.	80	51	6	1	2	1	4
Knoxville, Tenn.	83	62	14	2	3	2	5
Lexington, Ky.	55	35	11	4	2	3	5
Memphis, Tenn.	225	137	46	20	13	9	14
Mobile, Ala.	101	66	19	10	1	5	2
Montgomery, Ala.	47	37	6	2	1	1	3
Nashville, Tenn.	126	75	31	13	4	3	1
W.S. CENTRAL	1,435	890	325	142	44	34	67
Austin, Tex.	76	50	18	7	-	1	5
Baton Rouge, La.	56	34	13	6	3	-	3
Corpus Christi, Tex.	55	32	14	5	-	4	2
Dallas, Tex.	192	105	48	30	9	-	5
El Paso, Tex.	46	34	3	8	1	-	3
Ft. Worth, Tex.	129	74	35	9	3	8	6
Houston, Tex.	373	219	90	42	12	10	24
Little Rock, Ark.	56	35	12	6	2	1	-
New Orleans, La.	91	57	23	5	5	1	-
San Antonio, Tex.	193	127	35	20	6	5	6
Shreveport, La.	72	52	14	1	2	3	3
Tulsa, Okla.	96	71	20	3	1	1	10
MOUNTAIN	890	579	172	70	38	28	40
Albuquerque, N.M.	89	67	17	2	3	-	7
Boise, Idaho	34	24	6	2	2	-	2
Colo. Springs, Colo.	47	26	10	7	3	1	1
Denver, Colo.	84	50	21	5	3	5	6
Las Vegas, Nev.	182	111	40	17	5	9	8
Ogden, Utah	31	25	1	2	1	2	3
Phoenix, Ariz.	181	114	31	19	11	6	3
Pueblo, Colo.	27	22	4	1	-	-	-
Salt Lake City, Utah	95	59	18	6	6	4	2
Tucson, Ariz.	120	81	24	9	4	1	8
PACIFIC	1,653	1,149	312	119	45	28	107
Berkeley, Calif.	25	19	4	1	-	1	-
Fresno, Calif.	71	50	9	5	4	3	3
Glendale, Calif.	37	31	4	1	1	-	1
Honolulu, Hawaii	58	37	12	7	2	-	3
Long Beach, Calif.	58	42	14	-	2	-	4
Los Angeles, Calif.	559	383	116	42	9	9	21
Pasadena, Calif.	23	15	4	1	3	-	1
Portland, Oreg.	120	92	19	2	5	2	6
Sacramento, Calif.	U	U	U	U	U	U	U
San Diego, Calif.	154	109	29	11	2	3	18
San Francisco, Calif.	103	69	21	11	-	2	13
San Jose, Calif.	159	102	31	14	8	4	16
Santa Cruz, Calif.	22	14	4	3	1	-	4
Seattle, Wash.	142	99	23	12	5	3	5
Spokane, Wash.	53	42	7	3	1	-	7
Tacoma, Wash.	69	45	15	6	2	1	5
TOTAL	11,862¶	7,880	2,314	999	349	284	607

U: Unavailable -: no reported cases

*Mortality data in this table are voluntarily reported from 122 cities in the United States, most of which have populations of 100,000 or more. A death is reported by the place of its occurrence and by the week that the death certificate was filed. Fetal deaths are not included.

†Pneumonia and influenza.

§Because of changes in reporting methods in this Pennsylvania city, these numbers are partial counts for the current week. Complete counts will be available in 4 to 6 weeks.

¶Total includes unknown ages.

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